

REMARKS

Claims 1-12 and 14-20 are all the claims pending in the application. Claims 14-20 have been withdrawn from consideration leaving claims 1-12 examined in the subject Office Action.

Claim Objections

Claims 3 and 7 are objected to because of the following informalities. Applicants have amended these claims as suggested by the Examiner.

Claim Rejections Under 35 U.S.C. § 103

Claims 1-12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Drouart, et al. (U.S. Patent No. 5,522,007) alone or when taken in view of Mansfield (U.S. Patent No. 4,689,212). For the following reasons, Applicants respectfully traverse the Examiner's rejections.

Drouart et al relates to a method of building up an optical fiber preform by using plasma deposition, wherein hydroxyl ions are injected in a controlled manner into said build up silica so as to obtain a specific hydroxyl ion concentration (*See*, column 2, lines 37-45). This method has been further explained in column 5, lines 7-23. In principle, the method according to Drouart can be regarded as a two step or three step process. The first step is building up of the primary preform using non-humidified plasma-generating gas so as to obtain an initial build up of silica (step 1). Thereafter deposition continues with the water vapor concentration in the plasma-generating gas at a level that is either constant or that varies continuously and progressively (step 2). Build up may be terminated with a final build up of silica using non-humidified plasma-generating gas (step 3).

On the basis of this, the injection of hydroxyl ions in a controlled manner, i.e. step 2, does not take place during the whole method of building up an optical fiber preform. The initial build up is an essential step of the method according to Drouart (*See*, column 5, lines 46-58).

In contrast, in the present plasma build up method for building up an optical fiber preform it is crucial that the reducing element is introduced into the interaction zone during the whole method. There is no moment in the present plasma build up method wherein the reducing element is not present. The reason for this is that the function of the reducing element in the present build up method is totally different from the step of humidifying the plasma generating gas according to Drouart,

The present method involves introducing a reducing element upstream from the primary preform, the reducing element reacting to induce reduction of the nitrogen oxides produced by the interaction between the nitrogen and oxygen in the presence of the plasma generated by the torch. This specific function, i.e. the reduction of the nitrogen oxides, cannot be found in Drouart. In fact, Drouart et al is totally silent about the environmental aspects of the nitrogen oxides produced by the interaction between the nitrogen and oxygen.

On basis of this essential difference Applicants are of the opinion that the claimed invention would not have been obvious in view of Drouart et al taken alone or in view of Mansfield.

In fact, Mansfield teaches away from Drouart, because the object of Mansfield is to reduce the formation of undesirable OH ions, wherein the presence of these OH ions changes the spectral absorption of the silica so that light of selected wavelengths is undesirably attenuated in the finished fiber (*See*, column 1, lines 42-83). Therefore, there is no incentive to combine the

teachings of Mansfield with the teachings of Drouart et al. in order to arrive at the claimed subject matter.

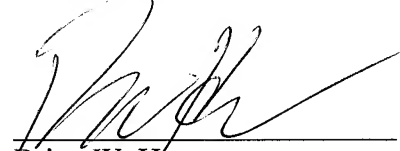
In short, the prior art does not teach or suggest the step in claim 1 of “introducing a reducing element into the interaction zone, the reducing element reacting to induce reduction of the nitrogen oxides produced by interaction between nitrogen and oxygen in the presence of the plasma generated by the torch.”

Indeed, the Examiner recognizes that Drouart et al. is deficient in regard to introducing a reducing element into a interaction zone disposed between the outlet nozzle of the plasma torch and the preform, but asserts that absent a showing of criticality, it would have been obvious to one of skill in the art to modify the device of Drouart et al. such that the hydroxyl ions are introduced at the claimed location. However, there is no teaching or suggestion in the prior art of introducing a reducing element (selected from hydrogen; ammonia; carbon monoxide; light hydrocarbons such as methane, ethane, propane and butane; urea, ammonium fluoride and derivatives thereof - p. 7, lines 9-15 of specification). The fatal weakness of the Examiner’s position is his assertion that “hydroxyl ions act as a reducing agent and hence would inherently be able to reduce the production of nitrogen oxides.” Office Action at p. 3. The Examiner has not provided any support whatsoever for this statement and Drouart et al. does not teach this function. Accordingly, it is submitted that the Examiner’s characterization of Drouart et al. is simply unsupported.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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CUSTOMER NUMBER

Date: July 29, 2008